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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

HEDLUND et al

Atty. Ref.: **1579-561**

Serial No. **09/840,029**

Group: **3742**

Filed: **April 24, 2001**

Examiner: **Robinson**

For: **MR-COMPATIBLE METHODS AND SYSTEMS FOR CARDIAC MONITORING
AND GATING**

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August 16, 2004

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION TO WITHDRAW RESTRICTION REQUIREMENT

Sir:

Pursuant to 37 CFR §1.144, applicants hereby petition the Director to review and withdraw the restriction requirement advanced against claim Groups I, II and III in the above-identified application. Hence, withdrawal of the restriction requirement advanced against such claim Groups I, II and III and the issuance of an action on the merits of all claims pending in this application are solicited.

I. Procedural Background

The Examiner originally advanced an election requirement between two patentably distinct Species – that is, Species A directed to method and apparatus to diagnose a heart and Species B directed to method and apparatus to diagnose a heart with an esophagus probe. (See, Official Action dated December 22, 2003.) The Examiner withdrew his asserted species election requirement in response to applicants' traversal in the paper dated January 5, 2004 since the asserted Species A is in fact a genus of the asserted Species B.

Subsequently, by way of the Official Action dated March 17, 2004, the Examiner advanced a six-way restriction requirement between claim Groups I through VI asserting that the claims of each Group were patentably distinct one from the other based in part by virtue of the separate status in the art as evidenced by different Office classifications.

Applicants traversed the propriety of the March 17, 2004 restriction requirement as between the method claims of Groups I, II and III asserting, *inter alia*, in the paper dated April 7, 2004 that, although somewhat different language (and hence claim scope) may be present among the claims of Groups I-III, there are claims that are nonetheless present in Groups I, II and III which define essentially a common patentable feature. In other words, applicants asserted in the response of April 7, 2004, that the method claims presented in Groups I-III may in fact differ in terms of claim scope, but all claims shared a similar patentable concept.¹ Method claims 31-36 were also presented with the April 7, 2004 response as claims which linked the combinations and subcombinations of Groups I-III.

In the Official action dated July 22, 2004, the Examiner maintained that the restriction requirement was proper and therefore made it "final". Moreover, the Examiner refused to examine new claims 31-36 asserting that:

"Newly submitted independent claim 31 recites 'optically detecting internal anatomic physical movement' not found in elected claim 1."

The Examiner further asserted that:

"Since applicant has received an action on the merits for the originally presented invention, this invention [defined by

¹ The April 7, 2004 paper also cancelled without prejudice claims 18-30 directed toward patentably distinct non-elected apparatus.

claims 1-5] has been constructively elected by original presentation for prosecution on the merits. Accordingly claims 31-36 [are] withdrawn from consideration as being directed to a non-elected invention."

This Petition is therefore being filed in response to the finality of the restriction requirement dated July 22, 2004, and the Examiner's refusal to examine newly presented claims 31-36 along with the elected method claims 1-5.

II. No Burden of Search or Examination Is Presented by the Pending Claims

A. Claims of Group I, II and III

It is the applicants' principal position that no burden of search or examination is presented by claims 1-17 of Groups I, II and III. Applicants acknowledge in this regard that such claims may in fact be patentable separately. However, as will become evident from the discussion below, since a common issue of patentability is presented among the claims of Groups I-III, their search and examination collectively in the present application does not amount to any undue burden. As such, considering all such claims together in this application in fact enhances the policy of economizing the Office's search and examining resources.²

It should of course be kept in mind that:

"If the search and examination of the entire application can be made without serious burden, the Examiner is encouraged to examine it *on the merits*, even though it includes claims to distinct or independent inventions."
(MPEP §803, emphasis added).

² Indeed, as will be discussed in greater depth below, in rendering the substantive Official Action of July 22, 2004, the record reveals that Examiner has already searched the **exact** class and subclasses in which the claims of Groups II and III are classified. As such, there can clearly be no burden of additional searching to be conducted with respect to such claim Groups.

Applicants note that **all** pending claims herein share at least one common limitation with respect to patentability – namely, that cardiac signals are derived in response to optically detected anatomic movements indicative of a cardiac phase. In this regard, please note the following claim chart comparison of the language present in certain claims in each of the asserted patentably distinct claim Groups I, II and III:

CLAIM CHART COMPARISON – GROUPS I, II AND III

<u>Group I:</u>	"deriving a cardiac signal in response to said optically detected movements [of an anatomic structure affected by cardiac activity] which is indicative of a phase in a cardiac cycle" (Claim 1, lines 5-7)
<u>Group II:</u>	"deriving a cardiac signal indicative of...cardiac activity and inactivity" (Claim 7, lines 1-3) Claim 7 of course depends from, and thereby necessarily includes all of the limitations of, claim 6 which requires the step of "optically detecting internal anatomic physical movement in response to rhythmic periods of cardiac activity and inactivity during a cardiac cycle" (Claim 6, lines 3-5)
<u>Group III:</u>	"determining movements of the esophagus...indicative of...cardiac activity and inactivity based on said detected reflected light [from the inserted optical fiber probe] and generating an output signal therefrom" (Claim 15, lines 9-12)

As is clearly evident from the claim chart above, although somewhat different language and hence claim scope may be present among the claims grouped in claim Groups I-III, common patentable subject matter can be found in claims which are present ***in each of claim Groups I, II and III***. Thus, in at least each of claims 1, 7 and 15 of Groups I, II and III, respectively, language is present which unequivocally defines

the **derivation** or **generation** of a signal in response to **optically detected** movements of **an internal anatomic structure** (e.g., the esophagus) indicative of a cardiac phase (e.g., cardiac inactivity and activity).

The Examiner asserts that applicants' prior arguments were not persuasive because "...the method claims cited are directed to different inventions i.e. a method of cardiac phase detection or a method of mri microscopy, the method claims cannot be used together since they are different functions." (page 2, lines 6-8 of the Action dated July 22, 2004). Thus, the Examiner seems to seize on the fact that the claims of the different groups are separate and distinct because of their respective preambles. As evidenced by the claim chart comparison above, however, the basic commonality regarding deriving or generating a signal in response to optically detected movements of an internal anatomic structure (e.g., the esophagus) indicative of a cardiac phase (e.g., cardiac inactivity and activity) is indeed a common – not different – function. Again, the fact that one set of claims may be generically broader in scope as compared to another set of claims does not in and of itself require restriction.

B. Newly Presented Claims 31-36

With regard to new claims 31-36, it will be noted in the claim chart below that, similar to the claims of Groups I–III, independent claim 31 requires deriving a cardiac signal indicative of rhythmic periods of cardiac activity and inactivity by optically detecting internal anatomic physical movement in response to rhythmic periods of said cardiac activity and inactivity during a cardiac cycle, and generating a trigger signal in response to such derived cardiac signal which is indicative of said periods of cardiac inactivity. Thus, claims 31-36 clearly link the combination and subcombination claims and as such should be examined with the elected claims of Group I.

<u>Claim 31</u>	"deriving a cardiac signal indicative of rhythmic periods of cardiac activity and inactivity by optically detecting internal anatomic physical movement in response to rhythmic periods of said cardiac activity and inactivity during a cardiac cycle" (Claim 31, lines 3-6)
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Moreover, the Examiner asserts that claims 31-36 have somehow been constructively non-elected by virtue of an action on the merits having been issued with respect to claims 1-5. However, at the time claims 31-36 were presented for examination, the applicants had **NOT** received at all any action on the merits of any claims. Thus, at the time claims 31-36 were presented they most certainly were **NOT** constructively non-elected. As such, the requirements of 37 CFR §1.145 have **NOT** been satisfied.

Applicants are moreover quite perplexed by the Examiner's statement that claim 31 recites "optically detecting internal anatomic physical movement" not found in elected claim 1. While the Examiner is correct that such language **exactly** does not appear in claim 1, the language which does appear in claim 1 is such that the search and examination of the recited functional step in the claimed methods of both claims 1 and 31 would be coextensive.

Specifically, a comparison of the relevant language from claims 1 and 31 below reveals that virtually the same functional step is required to be practiced even though some difference in scope may be presented as between such claims:

Claim 1:

"optically detecting movements of an anatomic structure affected by cardiac activity" (lines 3-4)

Claim 31:

"optically detecting internal anatomic physical movement in response to rhythmic periods of said cardiac activity and inactivity during a cardiac cycle" (lines 4-6)

Hence, withdrawal of the Examiner's conclusion that claims 31-36 have been constructively non-elected and their examination with claims 1-17 of Groups I-III are in order.

C. The Examiner Has Already Searched the Class and Subclasses In Which The Provisionally Non-Elected Claims of Groups II and III Are Classified

The Examiner asserted in the Action of March 17, 2004 that the claims of Groups I, II and III have acquired "...a separate status in the art as shown by their different classification." (Page 4, lines 1-3) Hence, the Examiner concluded that "...restriction for examination purposes as indicated [in the Action of March 17, 2004] is proper." (Page 4, lines 2-3).

It will be recalled in this regard the Examiner noted in the Action of March 17, 2004, that the claims of Groups I, II and III are properly classified as follows:

Group I – Class 250, subclass 336.1

Group II – Class 600, subclass 407

Group III – Class 600, subclass 413

As shown on the Examiner's Search Notes attached hereto as Exhibits A and B obtained from the electronic file history of this application via the Office's Patent Application Information Retrieval (PAIR) system, in rendering his action on the merits of claims 1-5 of provisionally elected Group I, the Examiner has ***already*** searched Class

600, subclasses 407 **and** 413 in which the claims of provisionally non-elected Groups II and III are classified.³

Thus, given the fact that at least one common patentable limitation links all of the pending claims herein and given the fact that the Examiner has **already searched** the class and subclasses in which the provisionally **non**-elected claims of Group II and III are classified, there really can be no rationale basis for continuing to maintain that an undue burden of search and examination is presented here. To the contrary, under the present circumstances, by continuing to maintain restriction between the claims of Groups I, II and III, and newly presented claims 31-36, the Office would in reality not be economizing its search and examination resources at all— a result that must of course be avoided.

III. Conclusion

It should now be readily apparent that claims 1-17 and 31-36 define inventions of varying scope of protection which should be examined together in the present application. Thus, although applicants do not disagree with the Examiner that patentably distinct inventions may in fact be defined as between the various claims of Groups I, II and III and newly presented claims 31-36, there nonetheless would be no undue burden in examining all such claim groups based on the commonality of language as noted above. Moreover, there is no undue burden of searching presented since the class and subclasses in which the non-elected claims are classified have already been searched.

Therefore, it is submitted that no Patent Office economy can be achieved by way of the present restriction requirement. For these reasons, it is requested that the

³ Curiously, the Examiner's search notes do not reveal that class 250, subclass 336.1 has been searched notwithstanding the Examiner's assertion that the provisionally elected claims of Group I are classified properly therein and notwithstanding the fact that an action on the merits of the Group I claims has already been issued on July 22, 2004

HEDLUND et al
Serial No. 09/840,029
August 16, 2004

restriction requirement be reconsidered and withdrawn as between claim Groups I, II and III and newly presented claims 31-36.

IV. Fee Authorization

No fee is believed to be required in order to have the merits of this Petition considered. However, any fee which should have been filed herewith may be charged to the undersigned's Deposit Account No. 14-1140. An early and favorable reply is awaited.

Respectfully submitted,

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Search Notes



Application No.

09/840,029

Examiner

Daniel I. Robinson

Applicant(s)

HEDLUND ET AL.

Art Unit

3742

SEARCHED

Class	Subclass	Date	Examiner
800	413 ⁰		
	410		
	407		
	428		
	425		
	421		
324	307		
	308		
	309		

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

SEARCH NOTES
(INCLUDING SEARCH STRATEGY)

	DATE	EXMR
Inventors Bauer, Hildebrandt, Hedlund Searched + Johnson		
EPO, TPO, Peru, USPTO/East		
Detection of cardiac phase, triggering		
Esophageal probe		
Filed 4/24/2001 No priority		
trans-esophageal probe		
No I.P.S. Search history Added		

EXHIBIT

A

L Number	Hits	Search Text	DB	Time stamp
1	6975	600/407-436.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:44
3	4132	324/307-317.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:48
4	5518	(brau or wheeler).in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:53
5	2	(brau and wheeler).in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:52
6	10466	600/407-436.ccls. or 324/307-317.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:52
7	1	((brau and wheeler).in.) and (600/407-436.ccls. or 324/307-317.ccls.)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:52
8	64997	(brau or wheeler or johnson or hedlund).in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:54
9	2	(brau and wheeler and johnson and hedlund).in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:54
10	16	((brau or wheeler or johnson or hedlund).in.) and (600/407-436.ccls. or 324/307-317.ccls.) and mri	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:58
11	0	((((brau or wheeler or johnson or hedlund).in.) and (600/407-436.ccls. or 324/307-317.ccls.) and mri) and 600/413.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:58
12	201	600/413.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:58
13	0	600/413.ccls. and cardiac with optically	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 09:59
14	7	600/413.ccls. and cardiac and optical	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 10:00
15	2	600/413.ccls. and cardiac with optical	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 10:02
16	2	600/413.ccls. and cardiac with optical	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/07/21 10:20